Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 1, with the following rewritten paragraph:

This application claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Patent Application Serial No. 60/094,106, filed July 24, 1998, of Kay, et al., for MULTI-MODE, MULTI-MODULATION POINT TO MULTIPOINT MICROWAVE RADIO SYSTEM, which U.S. Provisional Patent Application is incorporated herein by reference. This application is a divisional of U.S. Patent Application Serial No. 09/359,838, filed July 23, 1999, which is incorporated herein by reference.

Please replace the paragraph beginning at page 1, line 11, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/360,063————————————, filed July 23————, 1999, of Kay, et al.; for MULTI-MODE, MULTI-MODULATION POINT TO MULTIPOINT COMMUNICATIONS; now U.S. Patent No. ——————————————;

Please replace the paragraph beginning at page 1, line 16, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/360,209————————————, filed July 23————, 1999, of Kay, et al.; for MULTI-MODULATION RADIO COMMUNICATIONS; now U.S. Patent No. ——————————————;

Please replace the paragraph beginning at page 1, line 20, with the following rewritten

paragraph:

U.S. Patent Application Serial No. 09/359,605————————, filed July 23———, 1999,

of Corrigan, et al.; for MULTI-TRANSPORT MODE RADIO COMMUNICATIONS HAVING

SYNCHRONOUS AND ASYNCHRONOUS TRANSPORT MODE SUPPORT CAPABILITY;

now U.S. Patent No. ————————;

Please replace the paragraph beginning at page 1, line 24, with the following rewritten

paragraph:

U.S. Patent Application Serial No. 09/359,840————————, filed July 23———, 1999,

of Lohman, et al.; for SERVICE SPECIFIC INTERFACING IN POINT TO MULTIPOINT

COMMUNICATIONS; now U.S. Patent No. ————————;

Please replace the paragraph beginning at page 1, line 29, with the following rewritten

paragraph:

U.S. Patent Application Serial No. 09/359,832————————, filed July 23———, 1999,

of Muhammad, et al.; for EXTENSION INTERFACE UNITS IN A COMMUNICATIONS

SYSTEM; now U.S. Patent No. ————————;

Please replace the paragraph beginning at page 1, line 33, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/360,064——————————, filed July 23——, 1999, of Kay, et al.; for DEMAND ASSIGNED MULTIPLE ACCESS TECHNIQUES;~now~U.S.~Patent~No.~————————————;

Please replace the paragraph beginning at page 1, line 37, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/359,839——————————, filed July 23——, 1999, of Muhammad, et al.; for MULTI-TRANSPORT MODE BUS COMMUNICATIONS; now abandoned; ~U.S.~Patent~No.~————————————;

Please replace the paragraph beginning at page 1, line 41, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/360,241——————————, filed July 23——, 1999, of Wendling, et al.; for 1:N REDUNDANCY IN A COMMUNICATIONS SYSTEM; now abandoned; ~U.S.~Patent~No.~————————————; and

Please replace the paragraph beginning at page 2, line 3, with the following rewritten paragraph:

U.S. Patent Application Serial No. 09/360,210——————————, filed July 23——, 1999, of Muhammad, et al.; for TDM BUFFERING; now abandoned; ~U.S.~Patent~No.~ ————————————; all of which are incorporated herein by reference.

4

Please replace the paragraph beginning at page 37, line 4, with the following rewritten paragraph:

Referring next to ~~FIGS.~~ FIG. 6, a diagram of a traffic burst format used in the air interface frame format of FIG. 5 is shown including a split preamble feature. The traffic burst 600 includes: a preamble 602 containing guard ~~606~~ 607, ramp 608, first unique word 610, second unique word 611, a first data/spare section 612, and a second data/spare section 614; data section 604; and a parity 606. Also shown is the preamble split length 613.

Please replace the paragraph beginning at page 37, line 27, with the following rewritten paragraph:

The preamble 602 of the traffic burst 600 contains entirely known sections including the guard ~~606~~ 607, and ramp 608. However, the preamble 602 is unique in that instead of one unique word that would be used in a prior art preamble, the preamble is a "split preamble" in which the unique word is divided into a first unique word 610 and a second unique word 611. The first unique word 610 and the second unique word 611 are separated by the first data/spare section 612.

Please replace the paragraph beginning at page 53, line 28, with the following rewritten paragraph:

The modulation selector unit 1114 is the component of the multi-modulation modem 1100 that enables the multiple modulations to be used. The symbol-to-byte converter ~~1116~~ 1166, which is coupled to the burst formatter 1118. The byte-to-symbol converter ~~1116~~ 1166 is

programmable and converts the bytes to modulation symbols needed for the particular

modulation each burst will be modulated with (e.g. QPSK, 16-QAM, and 64-QAM). The burst

formatter 1118 is coupled to the constellation lookup 1120. The burst formatter 1118 formats the

symbols to a burst type, such as a quad burst or a single burst as discussed in FIGS. 7A and 7B.

A preamble and post-amble can be appended to the burst by the burst formatter 1118 as well.

The constellation lookup 1120 is programmable and formats the burst according to one of the

three constellations it is configured for: 4 (QPSK), 16 (16-QAM), or 64 (64-QAM). The

constellations are programmable and are not limited to square constellations. Constellations

such as multi-level circular 64 point constellations may be used. Thus, advantageously, the

modulation selector unit 1114 can format the bursts using a plurality of modulations on a burst-

by-burst basis. This represents an improvement over the prior art modems which only modulate

using one modulation.

Please replace the paragraph beginning at page 64, line 20, with the following rewritten

paragraph:

Each hub terminal 1302 (sector radio) includes a main outdoor unit 1304 having an

antenna 1306 coupled to a main indoor unit 1314 via an intrafacility link 1312 (IFL). Also

shown are the backup outdoor unit 1308 having an antenna 1310 coupled to the backup indoor

unit 1316 via an intrafacility link 1312. The backup indoor unit 1316 (IDU) has the same

connections as the main IDU 1314; thus, only the main indoor unit 1314 will be discussed. Each

main indoor unit 1314 has one DS3 line 1324 to the TDM Multiplexer 1318 and one OC3c line

1326 to the ATM Multiplexer 1320. The TDM Multiplexer 1318 and the ATM Multiplexer

1320 each have backhaul lines 1332 allowing connection to a transport network (not shown).

Each main indoor unit 1314 of each hub terminal 1302 is coupled to the LAN hub 1328 and the

timing source 1322. The timing source 1322 sends the timing reference signal 1334 to each hub

terminal 1302. The LAN router 1328 has an optional WAN line 930 1330 to the EMS.

Please replace the paragraph beginning at page 77, line 33, with the following rewritten

paragraph:

The multi-transport mode cell bus 1100 also operates at a fixed frequency that matches

the air interface symbol rate. For example, if the air interface operates at a symbol rate of 10

Msps, then the multi-transport mode cell bus 1510 operates at 10 Mbps. At the hub terminal, the

timing for the multi-transport mode cell bus 1510 is derived from a timing reference or link to

the transport network as described in FIG. 13. At the remote terminal, the timing for the multi-

transport cell bus 1510 is derived from the signaling sent from hub terminal. The CB-Data

section 1518 comprises fixed length data timeslots 1526. Advantageously, the data timeslots

1526 are configured such that they may carry both specially formatted TDM cells and ATM

cells, which are described in FIGS. 28 and 29, on the same bus frame format 1512. Again, this is

a departure from the prior art wherein separate bus frame formats are used for ATM and TDM

transport. The structure of the IM-Com cells that fit within each message timeslot 1528 of the

IM-Com section 1516 and the structure of the CB-Data cells that fit within each data timeslot

1526 of the CB-Data section 1518 are discussed with reference to FIGS. 16 and 17, respectively.

Thus, as will be described in FIG. 12B FIGS. 16 and 17, the CB-Data cells that fit within the

data timeslots 1526 of the CB-Data section 1518 are designed to carry either ATM cells or

specially designed TDM cells.

Please replace the paragraph beginning at page 106, line 16, with the following rewritten paragraph:

Referring next to FIG. 25A and 25B, a block diagram is shown for a multi-transport mode SSI module that is used in the remote terminal shown in FIG. 2. The multi-transport mode SSI module 2500 handles both synchronous traffic (TDM) and asynchronous traffic (ATM) and contains the multi-transport mode cell bus 2502, TDM cell formatter 2504 (TDM signal formatter), ATM cell formatter 2506 (ATM signal formatter), message buffer 2508, ATM timeplan and filter memory 2510, receive buffer 2512, transmit buffer 2514, PCM buffer controller 2516, PCM serial bus 2518, first utopia I bus 2520, second utopia I bus 2521, input/output (IO) bus 2522, AAL5 SAR 2524, AAL5 buffer 2526, AAL1 SAR 2528, AAL1 buffer 2530, central processing unit (CPU) 2532, PCI bridge 2538, PCI bus 2540, high-level data link control (HDLC) controller 2542, ROM bus 2544, Frame Relay serial bus 2546, CES serial bus 2548, LAN controller 2550 (shown in FIG. 25B for multi-transport mode SSI module 2501), timing multiplexer ~~1952~~ 2552 , T1/E1 framers 2554.

Please replace the paragraph beginning at page 119, line 9, with the following rewritten paragraph:

Referring next to FIG. 28, a block diagram is shown for an Asynchronous Transfer Mode (ATM) cell 2800 used in the point to multipoint system of FIG. 2. The ATM cell 2800 is a standard cell known in the art and has a header section 2802 and a data section 2804. The header section 2802 contains a virtual path identifier (VPI) 2806, a virtual channel identifier (VCI) 2808, and other ~~headers~~ header fields 2810. The standard ATM cell 2800 is 53 bytes in length. The header section 2802 is five bytes and the data section 2804 is 48 bytes. The header section

8

carries standard information, such as the VPI, VCI and other headers known in the art. The VPI

2806 is 8 bits and identifies the virtual path and the VCI 2808 is 16 bits and identifies the virtual

channel. The VPI and VCI are inserted at the ATM formatter of the ATM-based SSI modules at

the hub terminal so that the ATM-based SSI modules of the remote terminal can retrieve the

proper ATM cells.

Please replace the paragraph beginning at page 119, line 27, with the following rewritten

paragraph:

Referring next to FIG. 29, a block diagram is shown for a time-division-multiplexed cell

(hereinafter referred to as a TDM cell 2900) used in one embodiment of the point to multipoint

system. The TDM cell 2900 has a data section ~~2902~~ 2904 and a header section ~~2904~~ 2902

containing a virtual path identifier (VPI) 2906, and other headers 2908. Note that the TDM cell

2900 can also be referred to as a TDM packet; however, the specification refers to it as a TDM

cell since it is being modeled after an ATM cell. Additionally, the ATM cells 2800 and TDM

cells 2900 can be referred to generically as ATM signals and TDM signals.

Please replace the paragraph beginning at page 121, line 19, with the following rewritten

paragraph:

Referring next to FIG. 30, a block diagram is shown for an ATM address filtering

function that is performed at every ATM-based SSI module, such as shown in FIGS. 20, 22, 25A

and 25B at the remote terminals. Corresponding steps from FIGS. 31A and 31B, which illustrate

the steps performed in the ATM address filtering techniques at the ATM-based SSI modules,

will be referred to while referring to FIG. 30. The ATM address filtering diagram 300 shows a

multi-transport mode cell bus 3002, ATM formatter 3004 (or ATM signal formatter) containing a VPI compare 3006, an optional VPI lookup table 3007 and optional VPI accept/discard bit 3009 (for the ATM-OC3c SSI module of FIG. 22), buffer 3008 containing a VCI lookup table 3010, Utopia bus ~~2312~~ 3012, and a TDM cell formatter 3022 (or TDM signal formatter). The VCI lookup table 3010 has an VCI accept/discard bit 3016, AAL1/AAL5 bit 3018, and a second 8 bit portion 3020. The VPI compare 3006 includes the extracted VPI 3024, a register 3026, and a comparator 3028. Also shown are an AAL1 SAR 3013 and an AAL5 SAR 3014.

Please replace the paragraph beginning at page 122, line 3, with the following rewritten paragraph:

The multi-transport mode cell bus 3002 is coupled to the ATM formatter 3004 and the TDM cell formatter 3022. The ATM formatter 3004 contains the VPI compare 3006 and the optional VPI lookup table 3007. The ATM formatter 3004 is coupled to the buffer 3008, Utopia bus ~~2312~~ 3012. The buffer 3008 contains the VCI lookup table 3010. The ATM formatter 3004 and the TDM cell formatter 3014 are both custom logic devices.